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TO THE LAST DROP

the UNESCO Courier

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TO THE LAST DROP

***The UNESCO Courier* is reborn. Now a full-fledged online magazine, each new issue will focus on timely themes of special concern to the Organization. To celebrate World Water Day on 22 March, the Courier has published a collection of articles on this precious resource, that is increasingly threatened by population growth, pollution and poor management.**

Band-i-Amir lake in Afghanistan (2003).

WATER: A GRINDSTONE OF GOVERNANCE

There is no water shortage, at least not on paper. The Second United Nations World Water Development Report shows that resources are unequally distributed, and, above all, badly managed. Presented in Mexico City in March 2006, 'Water, a Shared Responsibility' takes an inventory of the planet's water resources. **3**

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WATER
A GRINDSTONE OF GOVERNANCE

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Woman removes water from a well in Mali.

Today, one in five people doesn't have access to safe drinking water. The report shows that bad quality water kills. Diarrhoeic diseases and malaria caused more than three million deaths in 2002, mostly among children under five.

Already, it is estimated that certain regions like sub-Saharan Africa will not reach the Millennium target that aims to cut in half the proportion of people without access to safe drinking water by 2015.

The short-term prospects are quite worrying. As a rule, demographic growth leads to a drop in the how much water is available per inhabitant. It is forecast that 55 % more food will be needed to feed the planet in 2030. However, current irrigation demands already represent nearly 70 % of freshwater consumed.

Freshwater is not just a technical issue. 'It is not only about digging wells or improving the water mains. Water must be tackled within in a much wider framework. It concerns not only science and technology but also cultural and social aspects', explains Andras Szöllösi-Nagy, Director of UNESCO's Division of Water Sciences.

> "Water stress tends to occur where individual rights and liberties are limited....".
>
> **Second UN World Water Report**

The political dimension mustn't be forgotten either. 'It is much less a problem of resources than one of governance', he adds. Corruption, which costs millions of dollars every year, also takes its toll on the supply of water. The report quotes a survey carried out in India which stated that 41 % of the people questioned had paid bribes to falsify their water meter readings.

But governance does not just concern developing countries. 'Hurricane Katrina showed just how unprepared the United States was to face such a catastrophe. The different levels of government did not work together enough', analyses Gordon Young, World Water Assessment Programme Coordinator at UNESCO.

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Traditional irrigation in Luang Prabang (Democratic republic of Laos).

This is a crucial issue since natural catastrophes are becoming more and more frequent, with 90% of them being linked to water.

Reasons for hope

Nevertheless, there are signs of hope. There appears to be a rising level of public awareness of the issue. If alarmist warnings from experts went unheeded for a long time, this is no longer the case.

Since the end of the 1990s, water has figured prominently on the international political agenda. The adoption by the United Nations General Assembly in 1997 of a resolution dealing with water became a turning point. At the same time, more and more private citizens are facing up to the issue.

In some Latin American countries, like Argentina or Bolivia, abuses linked to the privatisation of water services have given rise to significant protest movements. Uruguayans even voted a referendum to have water enshrined in their Constitution as public property.

'In the Nile basin, we have also seen the creation of groups of citizens who are very active in issues linked to water', adds Richard Meganck, Director of the UNESCO-IHE Institute for Water Education in Delft (Netherlands). 'The participation of people is absolutely vital if we want to implement sustainable and efficient management methods.'

Furthermore, certain good practices are being developed, like the practice in certain regions of India of collecting rainwater and storing it in underground reservoirs.

Mechanisms for mediating conflicts linked to water, like the Water Court in Valencia, already exist and could be spread.

In addition, approaches are being explored to improve supply techniques. One of these consists in continuing the 20th century practice of building dams. Enormous projects are underway, like Grand Inga, which is planned for the Democratic Republic of the Congo in ten years' time.

These projects, which have a serious impact on ecosystems, also give rise to many doubts.

A possible alternative for arid coastal countries may be to desalinate seawater. This technique, which is very costly, is already in use in Persian Gulf countries like Kuwait.

However, these technical solutions will not be enough. In the future, it will also be necessary to consider water as an exhaustible resource.

Agnès Bardon.

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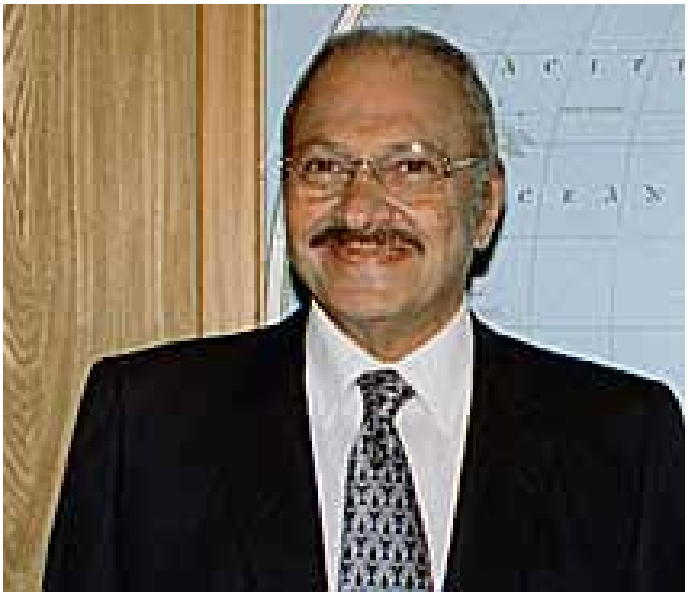
Woman taking water in Bolivia.

Prince Talal bin Abdul Aziz, President of the Arab Gulf Foundation for United Nations Development Organizations (AGFUND) has repeatedly warned of the water shortage threatening a number of Arab States, particularly in the six Gulf States.

ARAB STATES SUFFER FROM WATER SCARCITY

Interview with Prince Talal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Prince Talal.

Interviewed by Bassam Mansour

You were one of the first to draw attention to the threats to freshwater resources in Arab States, especially in the Gulf region. What is the current situation?

I often insist that the issue of water in the region is a matter of survival. The greatest challenge facing people in the Arab world, especially in the Gulf (rulers and ruled alike), is how to deal with the issue in a sensible way. The serious implications of the current situation call for something to be done rapidly. Looking at the situation of water in the Arab world in light of the Water Poverty Index, it becomes clear that the Arab world is on a dangerous downward slope towards an abyss. According to this index, a country suffering from water shortage is one whose average per capita share of water is below 1000-2000 m3 per year. Using this measurement, 13 Arab countries fall within the category of countries with water shortages or water scarcity; among them are a number of Gulf States.

Do you think the solutions currently proposed to limit water consumption are sustainable?

In our view, the practical solution is for governments to adopt well-designed water management policies which deal rationally with the problem while preventing waste and bridging the gap between available water resources and future needs. This should be done by revising the regulatory and legal framework: a large part of the water problem in our region is a result of regulations and laws.

In the Gulf, we are now witnessing a growth in awareness of the need to overcome the water crisis. We feel that this movement can be more effective if education is harnessed positively, and the private sector and civil society are mobilized to perform their duty to help Arab governments.

Scientific research should be concentrated in a Gulf State scientific institution which involves universities and draws on the experience of States and the expertise of international organizations. The creation of such an institution would make data available and help to resolve the discrepancies and conflicting approaches regarding the various readings of the "water situation", such as the raging debate on groundwater reserves.

Developing countries that face severe water shortages should pursue creative, non-conventional policies in order to deal with the crisis. One idea could be to undertake studies on the relocation of inhabitants of areas suffering from water shortages to regions within the same country where water is plentiful. Indeed, consideration could be given to the idea of moving the inhabitants of that State to a neighbouring State which is not facing a water crisis. This idea remains on the table, and those responsible should examine the feasibility of implementing it at the national or regional.

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Stripped water towers in the Gulf region providing precious water supply.

How can we best convince people of the seriousness of dwindling freshwater reserves and the need to rationalize consumption?

It is extremely important that plans and projects adopted by governments be based on solid popular support, which should strengthen them and provide a backdrop for their implementation. This means making people in the Arab world and the Gulf fully aware of the realities of the situation. This is the responsibility of the media, by which I mean the free and independent media. The starting point should be the promotion of a "culture of water" among the various social sectors, stressing the importance of rationalizing consumption. The other essential factor in rationalizing water consumption is education. Its inclusion in curriculum development will help prepare younger generations and make them aware of the future that awaits them if they ignore the water issue.

Researchers agree that there is a causal link between good governance and good water management. Do you agree?

Reform is an integrated system. There can be no talk of economic reform in isolation from concomitant political and social reform, because the economy is a reflection of politics and the social environment. Politics and the economy naturally cast their shadow on the social sphere. Reform thus has three dimensions and is indivisible, although it may be put into practice gradually, in stages. Dealing decisively with the water issue is thus part of the overall reform process. For instance, in order to address institutional shortcomings and inadequate water management, there needs to be political determination at the highest levels, and sufficient resources must be allocated to the reform national institutions, an endeavour which should be guided by the relevant modern concepts.

In this sense, the reform processes underway in the countries of the region can make a positive contribution to the solution of the water issue through the civil society organizations. These organizations, with their creative potential, can spearhead true changes in ways of thinking which may help to boost the water reserves available for future generations.

AGFUND has worked on a number of water-related programmes, what are the challenges you are trying to overcome, in particular through your cooperation with UNESCO?

The development and funding strategy we are pursuing at AGFUND addresses health, education, institution-building and private development. Water plays a crucial part in developing these four sectors. For instance, it would not be possible to imagine a comprehensive approach to tackle poverty without taking into account the complications arising from freshwater scarcity in poor communities. By the same token, projects to develop the education sector cannot be separated from efforts to address the water problem. If this were not so, UNESCO would not be at the forefront of this problem.

AGFUND has made great progress in its efforts to focus attention on the water problem, particularly in promulgating the concept of a "scientific and institutional culture", which we encourage in order to tackle social, economic and political problems. An example is our cooperation with the World Bank which has led to the publication of the most recent scientific report on water in the region, "A water sector assessment report on the countries of the Cooperation Council of the Arab States of the Gulf". The average annual per capita share of water in the Arab Gulf States lies between 60 and 370 m3. What is even more worrying, according to the report, is that this figure is expected to be halved by 2030, in view of high growth rate of the region's population, which is expected to increase to 56 million.

Cooperation with UNESCO in the water sector is ongoing. This is an extension of our development relations with the Organization. Perhaps the clearest sign of this cooperation is the fact that UNESCO designated the President of AGFUND as Special Envoy for Water for 2003, in order to draw attention to water issues worldwide.

We at AGFUND support all of UNESCO's work on water issues. This is why we announced at the World Water Conference in Delft (Netherlands) the establishment of an AGFUND-UNESCO Fund to support UNESCO projects on water issues. AGFUND donated $1 million to the Fund. We have also called upon governments, organizations and individuals concerned with development issues to provide the necessary material support to support UNESCO's work and activities.

"We look forward to seeing – as we have repeatedly called for – the establishment of supreme water councils in the countries of the region".

We look forward to seeing – as we have repeatedly called for – the establishment of supreme water councils in the countries of the region, who are entrusted with periodic assessment of the volume of reserves and of new resources, and monitoring of existing resources. Such an authority would constitute a kind of national database bringing together all estimates of water resources in the country, and would be involved in the design of policies and various strategies for their implementation. We believe that UNESCO, with its expertise and know-how, may help in this regard. For its part, AGFUND will spare no effort to support the idea, whether through funding or

In an overwhelming majority vote, water was enshrined in Uruguay's constitution as public property - a world first. As a result, the state must now decide what will happen to private concessions that managed the supply network before the vote, and also undertake the task of monitoring water quality.

WHEN WATER BECOMES A POLITICAL CHALLENGE

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Penitente Falls in Lavalleja (Uruguay).

In terms of water resources, Uruguay is somewhat blessed. According to the Second United Nations World Water Development Report, published in March 2006, the country is ranked 26th for the quantity of water available per inhabitant.

224 billion cubic metres of rain water falls each year in the country. However, a third of this volume evaporates or is lost, almost 183 billion litres of water per day.

In this South American country of three million inhabitants, this resource is used unsparingly. 6,000 litres of water costs a family only six dollars per month. However, only 43% of drinking water produced by the company is billed, as shown in a report commissioned by the state-owned water utility OSE (Obras Sanitarias del Estado). Also, it is not rare for a damaged pipe to leak for days before the authorities deal with it.

Yet it is now constitutionally enshrined that water belongs to the community. The result is that only state-owned companies can supply drinking water and sewage services.

The Uruguayan voters decided this by an overwhelming majority (64.58% of the votes) in a referendum in October 2004. Since then, a delicate process of negotiation

has been underway to transfer the private concessions to the public domain.

Furthermore, the constitutional reform established that drinking water and the sewage system 'are fundamental human rights'. Working on the assumption that water is property 'in the public domain', according to the amendment that was passed, Uruguay must now implement a national policy based on 'sustainable supportive management' of this resource.

© UNESCO/Fernando Barros

Penitente Falls in Lavalleja (Uruguay).

User involvement

Another important new concept: this policy now requires the participation of users at 'all levels of planning, management and monitoring'.

'Water cannot to be considered as private property, it belongs to all, to the community ', maintained lawyer Guillermo García Duchini, who took part in the drafting of the constitutional amendment, promoted by the National Commission in Defence of Water and Life, a coalition including close to forty associations.

> "Complete privatization of water services in developing countries, however, has not been able to meet expectations for improved and extended water supply and sanitation services. There is, thus, a need for improving dialogue on water between governments, civil society and the private sector…"
>
> **Second UN World Water Report**

'It is inconceivable that this vital resource should be subject to speculation and profit. 'In this respect', he continued, 'we have had rather negative experiences in this country, both in terms of cost to users and of protection of the environment'.

The lawyer recalled that the initiative for the reform was born out of a meeting of inhabitants in the Department of Canelones, in Southern Uruguay. At that time it was a response to worries among the local population that drinking water and sewage services would be privatized in the future.

The 2004 referendum, a world first, permanently ruled out this possibility. 'In Uruguay, the constitution can only be modified by referendum', explained García Duchini, hence the decision to resolve this issue by a vote.

Quality monitoring

The choice of the Uruguayans is surprising, to say the least, in a country that is liberally supplied with water, not only by rainfall but also by rivers and lakes.

Waterways such as the Uruguay River and the Río de the Plata flow towards most of the costal regions, and almost half the territory of this country of 187,000 km² is situated above usable aquifer sources (the largest, the Guarani aquifer, is one of the biggest subterranean freshwater reservoirs in the world, occupying 58,000 km² of Uruguayan territory and extending into Argentina, Brazil and Paraguay).

Mario García, Professor of the Department of Soil and Water at the University of Uruguay considers that water demand is currently low due to the enormous resources in the country.

Nevertheless, 'when a resource is abundant, little importance is attached to it, and instead of opting for integrated management of the hydrographic basin, an individual strategy is applied', he affirms.

Those in favour of the new legal framework wish to avoid this pitfall by creating specially designated organizations to administer the basins, comprised of the authorities, technicians and users.

However, according to Professor García, the main 'risk of vulnerability' that Uruguay faces today is the deterioration of water quality due to the use of agricultural chemical products. Preserving the quality and not only the quantity of water is now a public concern in Uruguay.

Mauricio Rabuffetti,
in Montevideo.

© UNESCO/Fernando Barros

The Río de La Plata is an enormous reserve of freshwater.

In Valencia's vast "huerta", the heartland of Spain's orchards, water is an historically strategic element. For centuries a special court has met on every Thursday to settle disputes relating to this key resource.

VALENCIA
WATER WISDOM

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Water Court meeting in the cathedral plaza in Valencia (Spain).

On Thursday at midday in the cathedral square in Valencia the faithful hurry to mass while tourists feed pigeons or read restaurant menus. At the first strike of twelve on the bell, an "alguacil", or constable, comes out of an adjoining building and picks up a long cane with a golden harpoon on one end.

He is followed by eight men dressed in the long black shirts traditionally worn by farmers in the region. These are the members of the "Tribuna del Agua", an ancient institution that meets each Thursday.

In public hearings, the court settles disputes on the distribution of water among the eight channels that irrigate the 17,000 hectares of land that form the huerta, where citrus fruits, rice, grapes and peaches are grown for all of Spain and for export.

At the sound of the cane striking the granite pavement, eight men with greying hair take their seats in front of the Porch of the Apostles on chairs made of wood and tooled leather. They are not judges, but "Sindicos", or magistrates, elected democratically for a period of two years, who represent the owners of all the eight channels.

They have no legal training and farm their land for their livelihood. All have the reputation for being 'honest men'.

The Sindicos master the rotations and watering periods, and it is their duty to distribute water proportionally and see to it that the channels that cross their land are maintained so that water may flow to the other farmers' fields.

'I come every Thursday because it is my duty'. Vicente Baixauli Pastor, Sindico of the Favara canal, one of the largest in the area. He is astounded by anyone who would doubt the usefulness of the Court. 'The Court is for people who don't

"a society that claims to attack water problems must make serious efforts to develop effective institutions and processes that can mediate disputes...".

Second UN World Water Report

do things right, and they clearly have to respect our decisions, as our institution was founded by the Caliph of Córdoba, who was a lord of great distinction and high rank'.

A court of Arab origin

It was the Arabs, during the time of Abderraman II and Al-Hakem II who perfected the irrigation system of the huerta. He designed the water distribution methods, and defined the principle according to which water distribution and the land are inseparable.

Arabic origins can be found in words such as azud (sluice gate), acequia (canal) and fila (a measurement unit equivalent to a variable quantity of litres per second).

The court in its current form was founded around 960 under the reign of Abderraman III, and it is thought that its sessions were held in front of the Porch of the Great Mosque, which is now the cathedral.

The hearings of the Court take place in the open air, and only in the Valencian language. Everyone acts on their own behalf, without a lawyer, prosecutor or any written documents. It is possible to call witnesses or order an inspection of the land if this is considered necessary.

Justice, laws and common sense

Court verdicts cannot be appealed. 'We are a Supreme Court, because we use good sense', states Baixauli.

© UNESCO/José Jordán

Sessions are in public and in Valencian language.

Even though he asserts that his decisions have always been fair, he regrets that he once convicted a saint.

'What happened was that there was too much water in the main canal, which destroyed the crops of a farmer who in turn accused his neighbour of letting in more water flow than was needed. He was the one I should have punished for false accusation, but as he had already lost his harvest, it seemed too harsh. So, I punished Saint Peter for too much rain and. As I am a Catholic, I later wrote him a letter asking him to forgive me'.

According to María Jose Mascarell Navarro, professor of administrative law and civil procedure at the University of Valencia, several factors explain the fact that the Court has endured and that its decisions are systematically respected: 'First, because it exercises its authority not over only one canal, but over all the channels. Then, because it is not a higher authority, but a court in which the Sindicos are elected democratically by the people. Above all, the traditional farmers see the fact of being judged in public as an affront. This is why they generally reach agreement beforehand'.

Meanwhile, Baixauli explains to anyone who wants to listen what he sees as the real dangers to the huerta: tourism, the main activity of the region. 'You see, our children do not want to hear about rice or orange trees, because farmers do not make much from their harvests - the person who makes money today is the one who plants pillars'.

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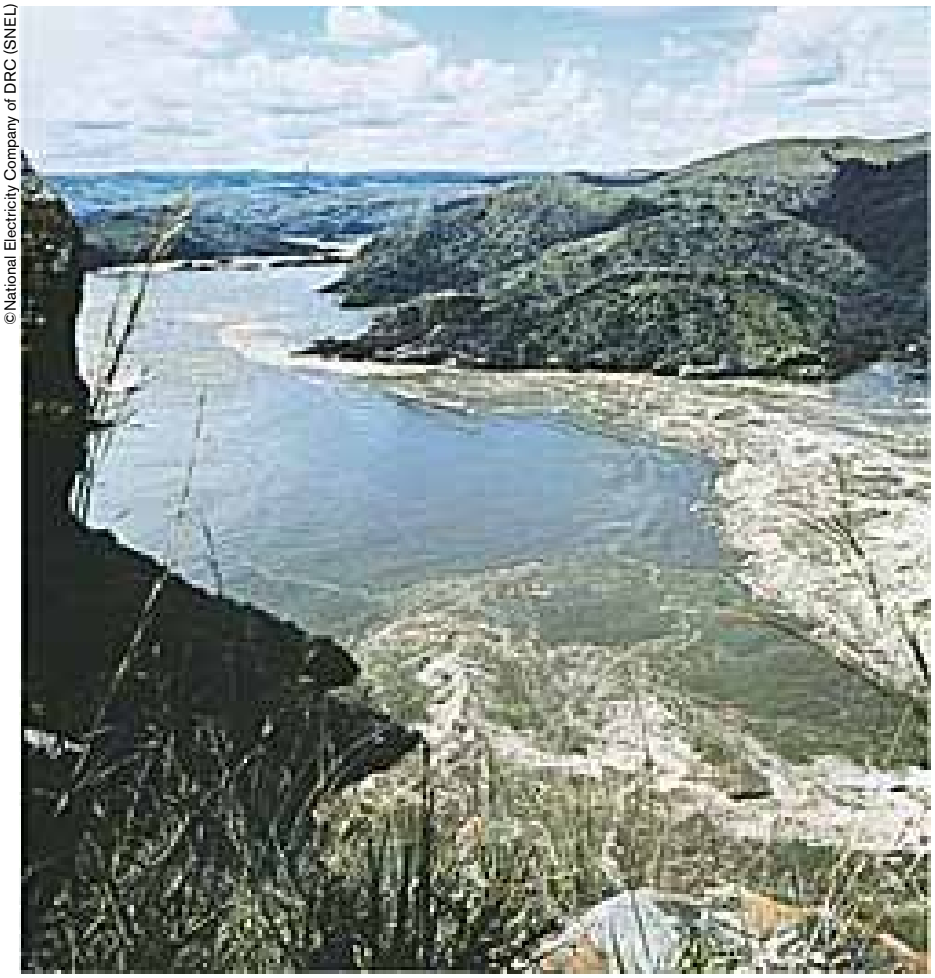
The system of "acequias" was created in muslim times.

Lucía Iglesias Kuntz.

The Congo River, whose flow is the greatest in the world after the Amazon, possesses an exceptional hydroelectric potential for the Democratic Republic of the Congo (DRC). While estimates boast that it could satisfy the electrical needs of the entire African continent, the access rate for inhabitants in the DRC is paradoxically one of the lowest in the world.

THE PROMISE OF THE RIVER CONGO



© National Electricity Company of DRC (SNEL)

Inga and its rapids.

One must simply have a look from the banks of the river wharf or "beach" in the country's capital Kinshasa to capture the power of the river that irrigates the Democratic Republic of the Congo. In testimony to the strengh of Congo River, the speeding current of muddy water sweeps along tree-trunks and forms whirlpools of foam, heralding the first rapids downstream of the capital.

This force is also apparent in figures: with an average flow of over 40,000 m3/s, it is an exceptional source of energy. It is estimated that this river represents around 13 % of the world's hydroelectric potential, and its force alone could satisfy the electricity requirements of the entire African continent.

In theory, this is its potential. The paradox is that electricity consumption in the RDC is one of the lowest in the world. The rate of households with access to

"... rapids, riparian vegetation and wetlands can all disappear when river flow is altered by damming."

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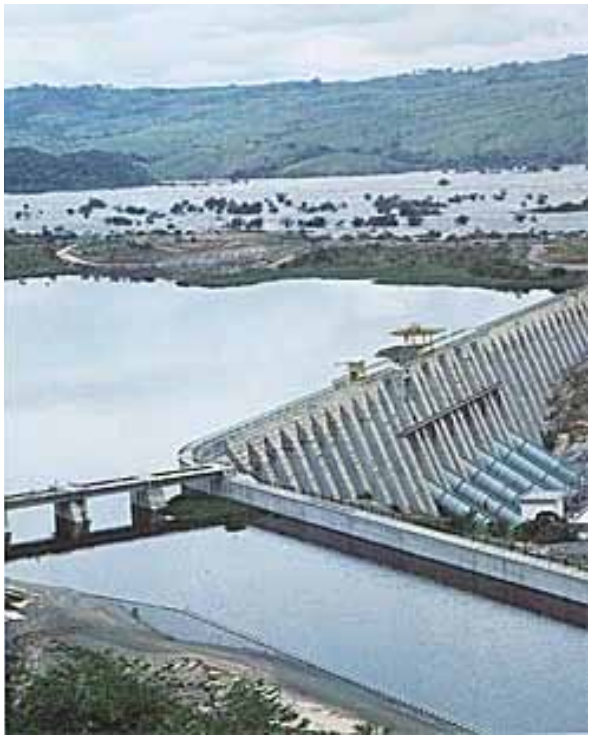
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Inga 1 power plant.

electricity is less than 6%, one of the lowest levels in sub-Saharan Africa.

Yet infrastructure does exist. Existing power sites (named Inga I and II) are situated on the lower reaches of the river, around 400 kilometres from the capital. These sites were brought into operation in 1972 and 1982, and have the potential to supply electricity to a large part of the region.

However, in many rural areas of the country today, petrol generators are still the only source of electricity. At nightfall, it is not rare for some popular districts of Kinshasa to be plunged into darkness, forcing the residents to use candles or hurricane lamps.

Ageing installations

It must be said that at first, priority was given to the mining industry to the detriment of households. Raymond Chikuru, who is an expert at the Ministry of Energy, states that 'electrical energy was above all developed to facilitate mining and the transformation of mineral ores'.

There is another problem: these installations operate at a very slow pace. They are dilapidated and suffer from a serious lack of maintenance. There is also a flagrant lack of spare parts, and breakdowns are commonplace. Professor Laurent Kitoko (University of Kinshasa), Director of Planning and Development at the Societe nationale d'électricité (SNEL), blames these shortcomings on the 'budget-devouring nature' of the hydroelectric industry.

The installations should have been rehabilitated in the 1990s, but the country was unable to meet the cost of the work, which was estimated at 15 million dollars for each of the two turbines in Inga I and II. The war that ravaged the DRC in the late 1990s, and led to the suspension of international cooperation, only worsened the situation.

The return to peace in the country and the resumption of international cooperation, has brought new development projects. There is now a plan to renovate Inga I and II and build a third dam.

A huge project

The final stage in the development plan is "Grand Inga", an enormous dam that will harness the entire flow of the river, and in turn supply a large part of Southern Africa (and even some countries in Southern Europe) with electrical energy in ten years' time. The estimated 50 billion dollars cost would have to be covered by international funding (the World Bank, the African Development Bank, etc.), and by private partners, like Eksom, the South African electricity utility company.

Grand Inga could become the cornerstone of electrical production on the continent, and give exceptional leverage to the country's economy, as long it also benefits its inhabitants.

Voices are already being raised to question this project, especially among environmental watchdogs. 'One big unknown is the effect on fisheries and the river ecology', says the Uruguayan association World Rainforest Movement (WRM), in a December 2003 document (1). WRM especially fears that fish migration will be interrupted, and that such a dam will, in the long run, damage silt flows, a phenomenon crucial to the river's ecosystem.

Moïse Musangana,
in Kinshasa.

Desalinization, recycling, importation: confronted with a virtual absence of water resources, Kuwait has been forced to find solutions to face its water shortage problems.

LIVING IN A COUNTRY WITHOUT WATER

© UNESCO/Felipe Alcoceba

Dry earth is virtually impermeable to rainwater.

Despite a booming economy and skyrocketing oil prices, Kuwait cannot avoid the challenge of water. Its natural resources are some of the most limited in the world.

While some annual precipitation does exist, the UN's Food and Agriculture Organization estimates that rainwater averages have fallen to 104 - 134 mm in comparison to the 176 mm for previous years. Furthermore, only a small part of this water percolates into the ground. The desert climate and the nature of the soil bring a high rate of evaporation.

Groundwater inflow in Kuwait has been estimated at about 20 million m^3/year. Due to lateral underflow from Saudi Arabia, both groundwater quality and quantity are deteriorating as more saline water is being pumped for irrigation purposes.

To face these challenges, Kuwait has for a longtime imported freshwater from Shat El-Arab in Iraq. This policy was officially endorsed by the state in 1939 with the foundation of the Kuwait Water Import Company. After the first oil boom in the early 1940s, Kuwait began its search to diversify its reserves.

In 1953 it built the country's first water desalination plant boasting a total output capacity of 4,545 m^3/day. The country now has six plants with an annual capacity of 231 million m^3.

Another avenue they have explored is that of recycling used water. To-

"... resources, such as water re-use and desalination, are being increasingly used and new technologies such asartificial re-charge are also becoming more common."

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Water towers in Koweit.

day, the quantity of treated and reused wastewater stands at around 52 million m³, which is mainly used for irrigation.

Recycling is a priority

A recent study conducted by the Kuwait University and the Petrochemical Industries Company (PIC) indicates that up to 70 percent of water used by manufacturing industries can be recycled. The practice of recycling has become a priority as a result of population increase resulting from economic prosperity.

To face growing demand, a new treatment plan was inaugurated in Sabiyyah in March 2005. Since then, water production has reached 182,000 litres per inhabitant according to recent studies.

However, this ambitious project did not stop Kuwaiti officials from making their repeated calls for water conservation. Recent studies show that the share of water per inhabitant in the region should plunge from the 1960's average of 3,500 m³ of water to only 650 m³ in 2025. Around 80 percent of the Arab world already suffers from drought.

Despite numerous awareness campaigns in Kuwait, water continues to be perceived as a free resource. With each household paying a relatively meager 20 to 30 dollars per month for water, who would think the country was suffering of a water problem? Benefits from subsidies only accentuate the problem.

Considering water a free resource

A recent effort to overcome water shortage came with the holding of the Seventh Gulf Cooperation Council (GCC) Conference on Water Management on November 22, 2005.

The head of the Council of the Kuwaiti Institute for Scientific Resources, M. Al-Hamad, emphasized that increasing consumption of water in Gulf member states increased the depletion of water and financial resources. These states currently spend millions of dollars to establish water plants to meet the increase in water demand.

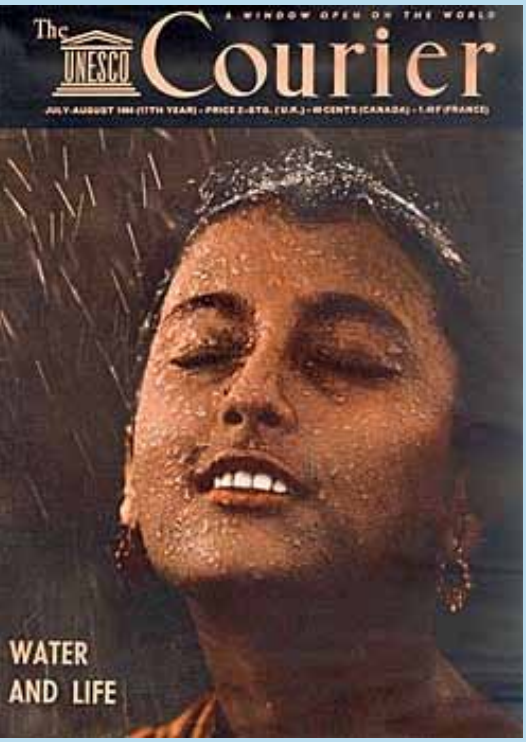
Another issue raised at the conference was the call for the establishment of a water grid joining the six GCC member states (Saudi Arabia, Kuwait, Qatar, Oman, Bahrain and the United Arab Emirates).

In the meantime, Kuwait must continue to rely on water desalination and treatment, alongside plans for water import from Iran. Although this small state has one of the highest per-capita incomes in the world, it will not be easy to resolve this crucial problem.

Bichr El-Dallal.

The Courier looks back

Since it began publication, *The UNESCO Courier* has devoted many issues o water-related problems. Here is a brief trip down memory lane.



The rush for water
November 2005

Reducing by half the number of people in the world deprived of clean water, between now and 2015.

Water for people, water for life
October 2003

On the occasion of the International Year of Freshwater, a flood of promises, a trickle of progress.

Striking peace on troubled waters
October 2001 -

The mirage of the "water wars."

What price water?
February 1999

Limited supplies, growing demand for this rare resource.

Water of life
May 1993

This issue marks thirty years since UNESCO launched the International Hydrological Decade in 1964, the first truly international scientific and educational effort in hydrology. Among the most significant fruits of such efforts are the drawing up of hydrological maps particularly useful for the world's water-short developing countries.
Ten years later, UNESCO created the International Hydrological Programme, with the aim of finding solutions to the problems of countries with different geographical and climatic conditions and at different levels of technological and economic development.

The wonder of water
January 1985

Every living thing consists mostly of water. A human being is about 65 per cent water, an elephant 70, a potato 80 and a tomato 95. Yet the benefits of water are not evenly distributed. Over half the people in the Third World lack clean drinking water, three-quarters have no sanitation, while three-quarters of human illness is related to lack of clean water and sanitation. Five years after the launch of the International Drinking Water Supply and Sanitation Decade, this issue examines the current situation.

A world water famine can it be averted?
February 1978

"If nothing is done, water resources in the world's populated areas will be nearly exhausted by the year 2015." Such is the bleak opening line of this issue, one year after the United Nations Water Conference. Held in Mar del Plata (Argentina), the 1,500 delegates from 116 countries faced a daunting task: some $100 billion must be invested by 1990 to provide the world's urban and rural areas with adequate water supplies, while a further $100 billion of investment will be need by 1990 for irrigation.

Man in quest for water
June 1970 -

At mid-point in the International Hydrological Decade, the vast programme has mobilized hydrologists the world over for man's first concerted attempt to take stock of his diminishing fresh water resources and to coordinated worldwide research on better ways of making use of them. The issue examines the historical and scientific background of the problem and describes some major areas where this international cooperation has been in action.

Water and life
July/August 1964

In preparation for the 1965 launch of the International Hydrological Decade, this double issue on water highlighted our constantly increasing need for water. The lead article warned that in 20 years' time, the demand for water will roughly double. It is the domain of hydrology to research different forms in which the world's waters exist, their circulation and distribution, their interactions with the environment, including their responses to human activity.

José Banaag

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2.6 million people don't have access to basic water sanitation.

Facts and Figures

Water & sanitation

Some 1.1 billion people still do not have access to an adequate supply of drinking water and some 2.6 billion do not have access to basic sanitation.

Health

Globally, diarrhoeral diseases and malaria killed about 3.1 million people in 2002, 90 % of them children under the age of five. An estimated 1.6 million lives could be saved annually by providing access to safe drinking water, sanitation and hygiene.

Food production

On average, it takes about 3,000 litres of water per person to produce our daily intake of food.

Food consumption

The world will need 55% more food by 2030. This translates into an increasing demand for irrigation, which already claims nearly 70% of all freshwater consumed for human use. Food production has greatly increased over the past 50 years, yet 13% of the global population (850 million, mostly in rural areas) still do not have enough to eat.

Urbanization

Half of humanity will be living in towns and cities by 2007. By 2030, this will have risen to nearly two thirds, resulting in drastic increases in water demand in urban areas. An estimated 2 billion of these people will be living in squatter settlements and slums.

Usage

Water usage has increased six times in the last century – twice the rate of population growth.

Wastage

A staggering 30-40% of water being transported goes unaccounted for worldwide due to water leakages in pipes and canals and illegal tapping.

Environmental species

Freshwater species are more threatened by human activities than species in other realms. On average, populations fell by about 47 % between 1970 and 2000.

Energy investment

Total worldwide investment in renewable energy rose from $6 billion in 1995 to approximately $22 billion in 2003, and is increasing rapidly.

Hydropower

Europe makes use of 75 % of its hydropower potential. Africa, where 60% of the population hasno access to electricity, has developed only 7 % of its potential.

Disasters

In the last decade, 90 % of natural disasters are water-related events, and they are on the increase. Two out of every five people now live in areas vulnerable to floods and rising sea-levels.

Lakes

Lake Baikal (Russia) is the world's largest, deepest and oldest lake, it alone contains 27% of the freshwater contained in all the world's lakes. The world's 145 largest lakes contain over 95% of all lake freshwater.

Rivers

The Amazon carries 15% of all water returning to the world's oceans. An estimated 263 international river basins have drainage areas that cover about 45% of the Earth's land surface, excluding polar regions.

Source:
The United Nations World Water Development Report 2 (2006)

CONTACT

United Nations
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7, place de Fontenoy
75352 Paris 07 SP, France
+ 33 (0)1 45 68 15 88
http://www.unesco.org/fr/courier

General inquiries, reprint and reproduction rights
f.ryan@unesco.org
+ 33 (0)1 45 68 15 88

Director
Saturnino Muñoz Gómez

Editors

Arabic
Bassam Mansour

Chinese
Weiny Cauhape

English
Edna Yahil

French
Agnès Bardon

Russian
Vladimir Sergueev

Spanish
Lucía Iglesias Kuntz

Editorial Assistant
José Banaag

Photo
Fiona Ryan - f.ryan@unesco.org

PDF Layout
Gilbert Franchi

Web platform
Stephen Roberts, Fabienne Kouadio, Chakir Piro

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